



PAPUA NEW GUINEA · NATIONAL ENERGY AUTHORITY

COUNTRY REPORT

Energy Sector Update in Papua New Guinea

JICA Knowledge Co-Creation Program — Energy Policy

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Outline of Presentation



1  General Information about PNG

3  Organisational Structure (Energy)

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General Information about PNG



Location

South Pacific, north of Australia; shares a land border with Indonesia



Land area

462,840 km² — mountainous terrain, extensive river systems, forests & 600+ offshore islands



Languages

English (official), Tok Pisin & Hiri Motu, plus 840+ Indigenous languages



Capital

Port Moresby



Currency

Papua New Guinean Kina (PGK)

Located in the South Pacific, north of Australia



Source: “Our Resource Industry” — PNG Chamber of Resources and Energy, pngcore.org (2023). Accessed 5 Feb 2025.



Economic Indicators



Population

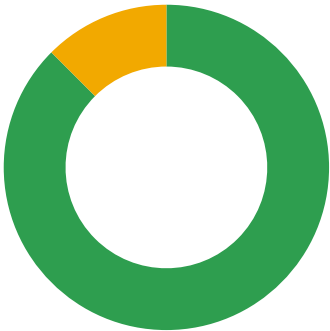


GDP growth



Households

Households by Settlement Type



 Rural

1.75 M households

87.5%

 Urban

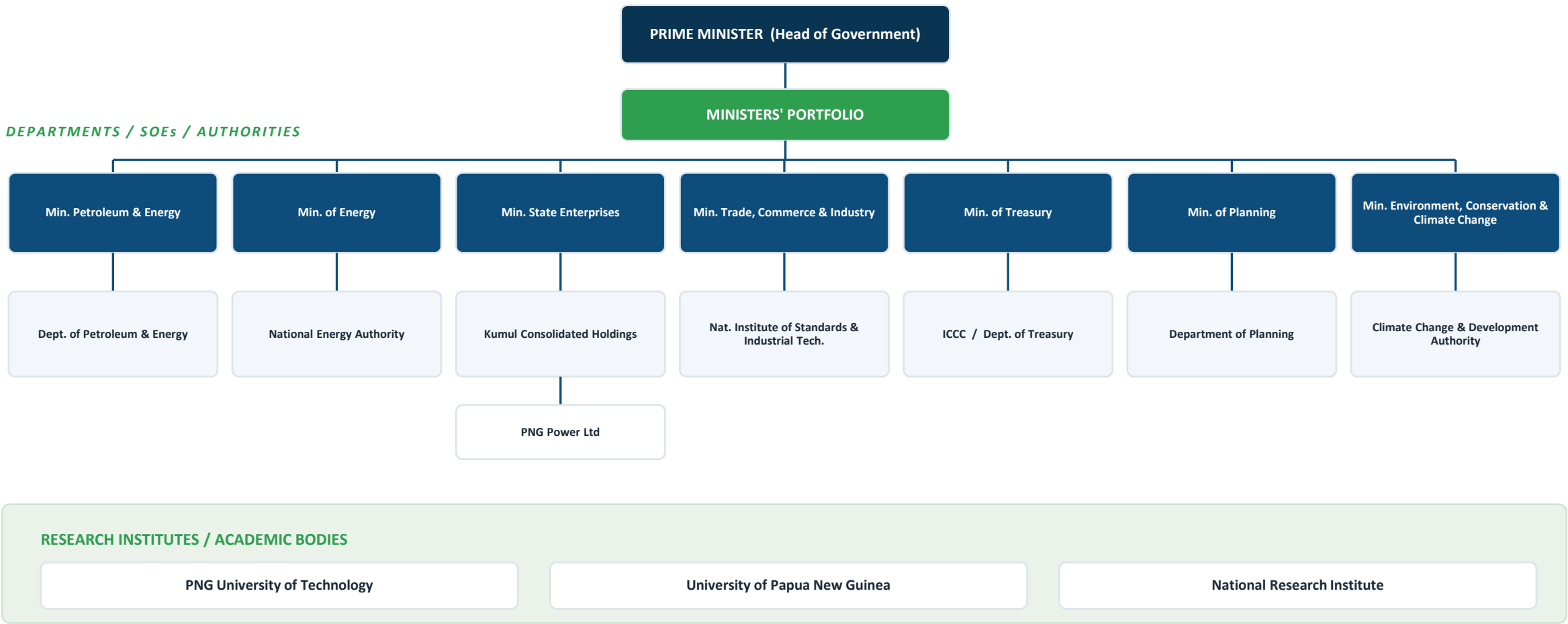
0.25 M households

12.5%

Source: National Statistical Office (NSO) — 2024 National Population Census, Final Figures (2025). GDP growth: ADB ADO 2026.



Organisational Structure Related to Energy



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Past Energy Demand & Supply

Primary energy supply by source over at least the past 10 years (UNIT: ktoe)

- Production: hydropower, biomass and natural gas
- Imports: diesel, petrol and LPG
- Exports: LNG via the PNG LNG Project
- Trend: LNG exports have grown since 2014; local diesel use remains high



Primary Energy Supply by Energy Source

UNIT ktoe



Oil & diesel

Dominant in urban and off-grid power generation



Natural gas

Export-oriented; limited domestic use



Hydropower

~40% of installed electricity capacity



Biofuels & biomass

Widely used for rural cooking



Solar

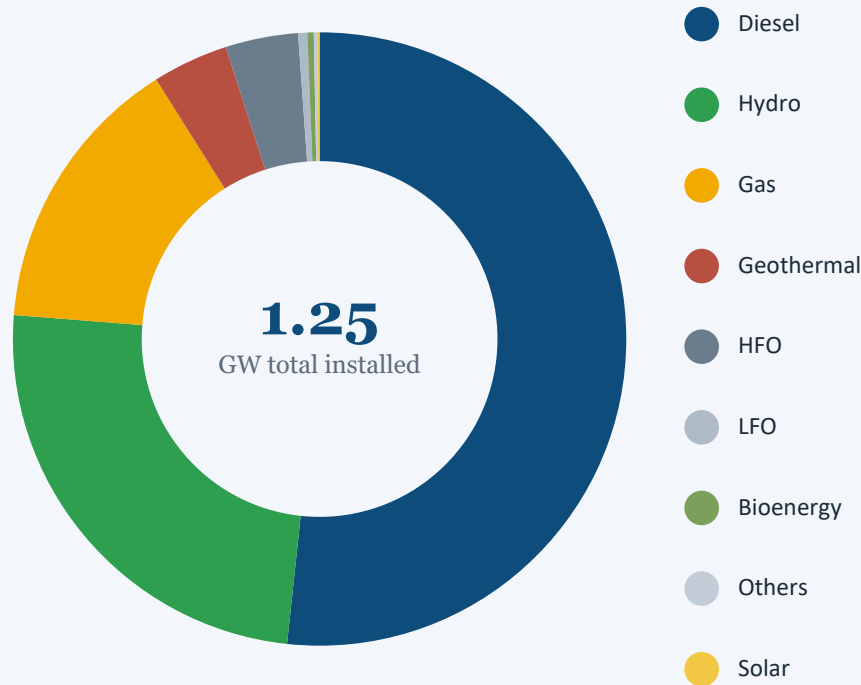
Minimal but growing in remote communities



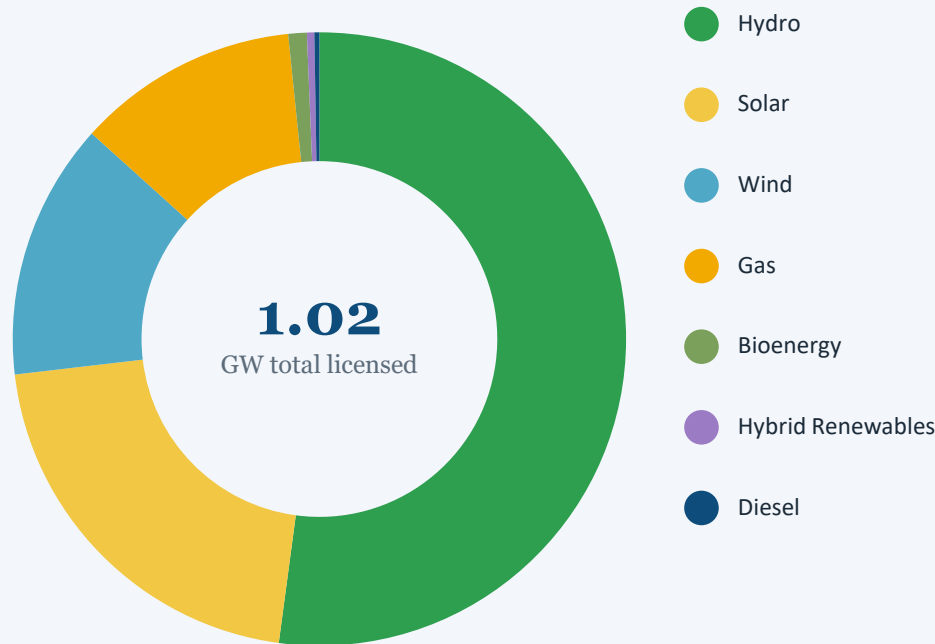
Energy Mix: Current Capacity vs Licensed Projects

UNIT MW

PNG's current energy capacity by source

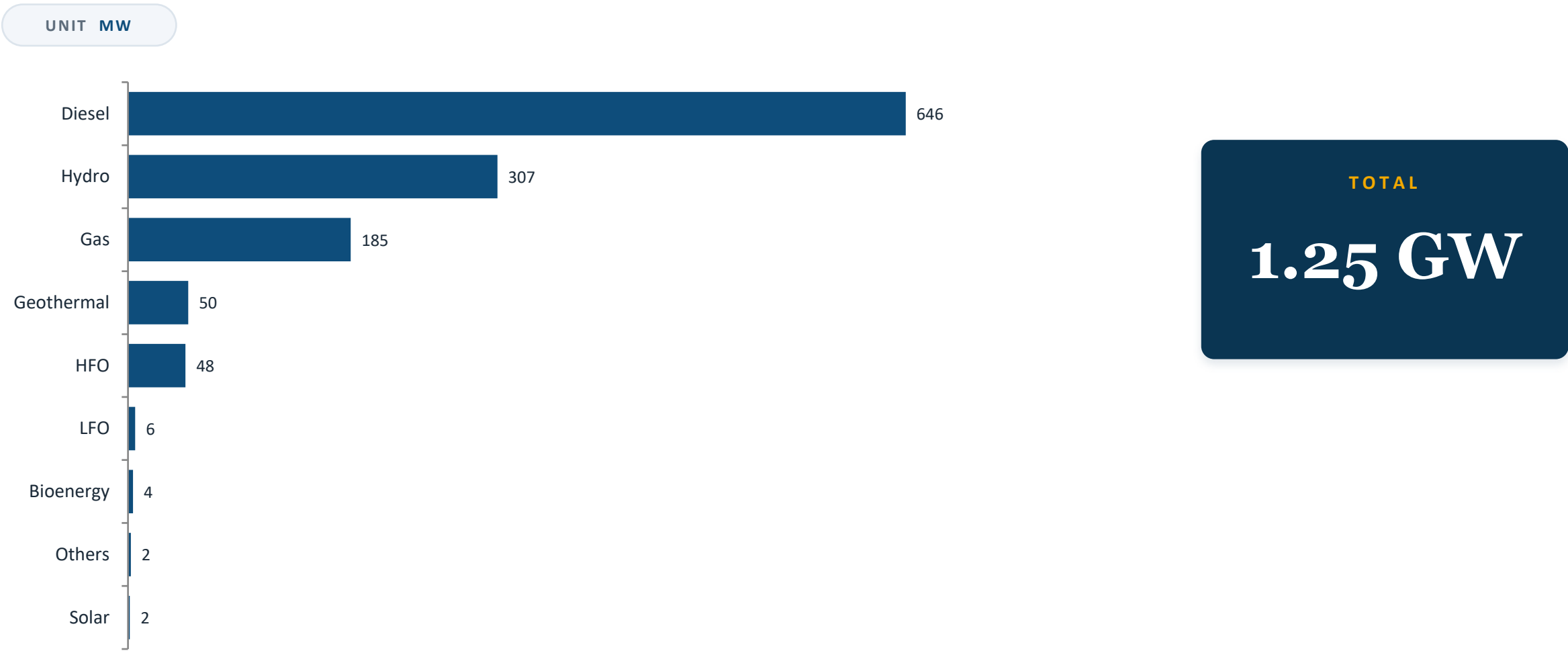


Licensed energy projects — next 3 years





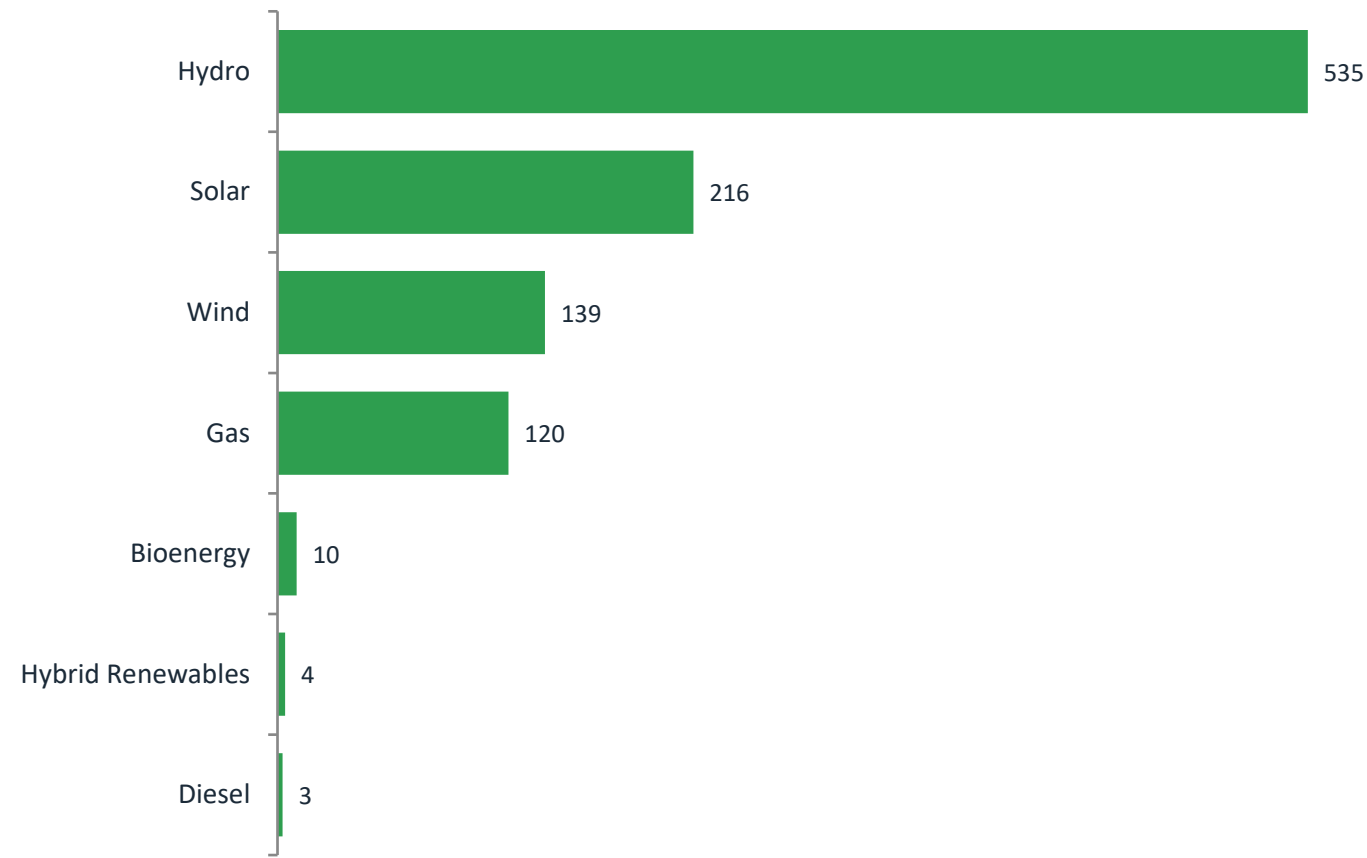
Current Installed Capacity by Source





Licensed Energy Projects — Next 3 Years

UNIT MW



TOTAL
1.02 GW



Final Energy Consumption by Sector

UNIT ktoe



Transport

Highest energy consumer (~40–50% of demand)



Residential

High reliance on biomass and off-grid use



Industry

Mostly self-supplied with diesel or gas



Public services & commercial

Grid-connected and urban-focused



Final Energy Consumption by Energy Source

UNIT ktoe



Diesel & petrol

Main fuels for transport & industry



Biomass

Predominant in rural homes



Electricity

Used mainly in urban areas



Gas

Mostly exported; little domestic use

Electricity Generation by Energy Source

UNIT GWh



Hydropower

~40% of grid generation



Diesel

Supplies most off-grid and backup generation



Gas

Used in Port Moresby (NiuPower plant)



Solar & others

Minor share but growing in pilot projects



CO₂ Emissions by Sector & Energy Source

UNIT Mt CO₂

	Major contributors	Transport and diesel-fired generation
	Energy sources	Diesel, petrol and LPG
	Industrial emissions	Relatively low due to limited scale
	Renewables (hydro, solar)	Near-zero emissions

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Outlook for Energy Demand & Supply

Projected primary energy supply by source & energy source (UNIT: ktoe)

- 2030: hydro, gas and solar increase; diesel imports still high
- 2040: decline in diesel; rise in domestic hydro, solar and biomass
- 2050: majority of supply from hydro, solar and bioenergy
- LNG remains a key export, while domestic gas use remains limited

Projected Final Energy Consumption

UNIT ktoe

2030

Transport still dominant;
more electricity used in
households

2040

Growth in industrial and
residential electricity
demand

2050

Decarbonised transport;
higher renewable electricity
use

i *Rural energy access expanded through off-grid systems*

Electricity Generation Forecast

UNIT GWh

2030

Hydro 45% · gas & diesel 50% · solar 5%

2040

Hydro 50–60%; solar and biomass growth;
diesel reduced

2050

Hydro and solar dominate; gas retained as
backup



Smart grids and storage introduced in urban centres

Projected CO₂ Emissions

UNIT Mt CO₂**2030**

Moderate reductions as solar and hydro increase

2040

Significant drop in emissions from the power sector

2050

Near-zero emissions from electricity; transport shift



Aligned with PNG's Nationally Determined Contributions (NDCs)

Current Energy Policy & Measures



National Energy Policy 2017–2027 and the NEA Act 2021 frame sector governance & regulation



NEROP targets 70% electricity access by 2030; Enhanced NDC targets 78% on-grid renewables



National Energy Sector Long-Term Strategic Plan 2026–2050 guides the energy transition

Major Difficulties in Policy Formulation



Geographically challenging — a large, sparsely located rural population



Capacity gaps in planning and regulation



Overlapping institutional roles and weak coordination

Learning Priorities in this Program

Learning goals & supervisor expectations



Understand Japan's energy policy design and planning



Learn renewable integration models (solar, hydrogen, hybrid grids)



Study regulatory frameworks and energy governance



Supervisor expects practical policy knowledge to support NEA

Appendix 1 • Current Retail Fuel Prices (May 2025)

Location	Petrol (t/L)	Diesel (t/L)	Kerosene (t/L)
Port Moresby	417.70	388.79	360.55
Lae	424.94	394.39	365.54
Mt Hagen	444.82	413.07	385.64
Goroka	435.63	403.25	375.50
Madang	429.63	398.33	369.89
Wewak	431.97	400.12	371.96
Rabaul / Kokopo	431.82	400.30	372.19
Alotau	431.28	398.73	370.91
Kavieng	440.45	409.67	381.99
Buka	438.09	407.70	380.12

Indicative retail prices in toea per litre (t/L), May 2025.



Appendix 2 · Electricity Tariffs (2025)

Customer Category	Tariff Type	Rate (PGK/kWh)	Notes
Domestic (Urban)	Easipay (Prepaid)	0.65	Standard residential rate
Domestic (Urban)	Credit Meter (Postpaid)	0.65	Monthly billing
Commercial (Small)	Easipay	0.75	Small businesses
Commercial (Large)	Credit Meter	0.85	Large enterprises
Industrial	Credit Meter	0.90	High-demand users

Appendix 3 • IPPs & Donor-Funded Projects



Independent Power Producers (IPPs)

- **Dirio Gas & Power** — 45 MW gas-fired plant supplying Port Moresby
- **PNG Forest Products** — Baiune Hydro supplying Bulolo, Morobe Province
- **Naima Hydro** — planned hydro projects in Hela & Southern Highlands
- **PPAs** — IPPs sign Power Purchase Agreements with PNG Power Ltd



Donor-Funded Projects

- **ADB** — Town Electrification Investment Program; PoM grid expansion
- **World Bank** — Energy Utility Performance & Expansion; technical assistance
- **JICA** — capacity building in policy & planning; RE feasibility studies
- **EU** — solar mini-grids and energy access for schools & clinics



Appendix 4 • Domestic Energy Investments

Institution / Initiative	Role / Contribution
National Energy Authority (NEA)	Leads policy direction and energy sector coordination
PNG Power Ltd	Operates Edevu Hydro; installs solar mini-grids; rural electrification rollout
Department of Treasury	Allocates Public Investment Program (PIP) funding for energy infrastructure
Department of National Planning	Ensures energy alignment with MTDP IV and Vision 2050 goals
Dirio Gas & PNG Forest Products	Private-sector developers: gas-to-power and industrial hydro generation
PNG Electrification Partnership (PEP)	Coordinates donor support for on-grid and off-grid access
ADB, UNDP	Fund and implement rural energy and renewable energy demonstration projects



Appendix 5 • International Energy Investments

Partner / Investor	Project / Support	Relevance to PNG
ADB	Port Moresby Grid Development; Town Electrification	Infrastructure expansion & reliability
World Bank	Energy Utility Performance & Expansion Project	Utility reform, system efficiency
PNG Electrification Partnership	Grid rollout support by US, Japan, Australia, NZ	70% electrification target by 2030
JICA	Technical training, policy support	Capacity building (incl. this program)
Papua LNG (TotalEnergies, ExxonMobil, Santos)	Up to \$10B investment in gas infrastructure	Private investment, export revenue
EU & UNDP	Renewable energy and rural electrification	Clean energy and access expansion
Green Finance Centre PNG	Blended finance for clean energy	Mobilising private capital for renewables

Appendix 6 • Additional Information



600+

offshore islands — many still unelectrified



87.5%

of households are in rural areas



Biomass and kerosene are still widely used for cooking



NEA is drafting sectoral and provincial energy plans



THANK YOU

for your attention

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